**LOWER PRIMARY** 

Level

F	I	2	3	4	5	6	В6
---	---	---	---	---	---	---	----

# Throwing and catching

#### Strand

Developing Concepts and Skills for Physical Activity

## **Purpose**

Students develop an understanding of the basic principles of throwing and catching, and demonstrate these skills in simple combinations. They note how these skills require varying amounts of energy that cause physical changes to the body and identify the opportunities that exist for participation in throwing and catching activities in the local area.

## Overview of activities

Activities in this module are based on a learner-centred approach with an emphasis on decision making and problem solving. As the following diagram shows, activities are sequenced in **introductory**, **developing** and **culminating** phases.

**Introductory:** Throwing and catching

**Developing:** Processing information

Culminating: Applying skills and knowledge



### Core learning outcomes

This module focuses on the following core learning outcomes from the Years 1 to 10 Health and Physical Education Syllabus:

#### Developing Concepts and Skills for Physical Activity

**2.2** Students demonstrate basic movement skills using equipment in play and simple games.

**2.3** Students compare the effects on the body of participating in physical activities of varying intensities.

#### **Core content**

#### Developing Concepts and Skills for Physical Activity

This module incorporates the following core content from the syllabus:

- components of movement, in particular body awareness and space awareness;
- principles of movement;
- skills acquisition;
- relationship between health, physical activity and fitness.

## **Assessment strategy**

The following are examples of assessment tasks that provide opportunities for students to demonstrate the core learning outcomes identified in this module.

# Developing Concepts and Skills for Physical Activity 2.2

- Students perform basic throwing and catching skills over a short distance, using a variety of equipment.
  - Can the student throw balls/beanbags over a short distance using underarm, overarm, one-handed, two-handed, overhead techniques?
  - Can the student use appropriate body movements to catch balls/ beanbags correctly?

# Developing Concepts and Skills for Physical Activity

- Students identify and describe the effects on the body of participating in various physical activities of varying intensities.
  - Can the student describe how the body changes when a person puts a lot of effort into physical activity?
  - Can the student compare the effects on the body of those throwing and catching games and sports that require considerable effort and intensity with those that do not?
  - Can the student vary the intensity of his or her participation in physical activity?

### **Background information**

#### Throwing and catching skills

Throwing and catching skills are an important component of many games and activities played by students in the lower primary school. It is important that students in the early years of schooling be given many opportunities to develop these skills to prepare them for the games and sports they may play in the middle and upper primary years of school. Netball, softball, newcomb, football, basketball and cricket are some of the games that require good skills in throwing and catching.

This module provides an introduction to a variety of throwing and catching skills and activities that can be developed further in later teaching and learning. For students who are vision or hearing impaired, balls and beanbags should be large, brightly coloured and have bells inside them.

Contact local cricket, netball, basketball, softball and baseball associations for further advice on the skills and techniques of throwing and catching.

#### Learner-centred approach



This module uses the multiple intelligence theory of Gardner (1983). Multiple intelligence theory is based on the notion that people make sense of their world in a variety of ways using different intelligences. To date, Gardner has identified eight different intelligences — verbal/linguistic, bodily/kinaesthetic, visual/spatial, logical/mathematical, musical/rhythmic, interpersonal/social, intrapersonal/introspective, and naturalist. All eight intelligences are present in each individual; thus, individuals need opportunities to develop those intelligences. Each individual also has strengths and weaknesses in particular intelligences, which further support the need for a focus on developing skills and knowledge across all intelligences. (For further detail on Gardner's theory see Resource Sheet 1, 'The multiple intelligences'.)

The bodily/kinaesthetic intelligence underpins most activities in this module and therefore is also used as an integrating device with the other 'intelligences' where appropriate. Despite the formal separation of intelligences within this module, the activities associated with each intelligence often integrate naturally with other intelligences. It is not necessary to complete all activities from the module but teachers should ensure that those activities selected provide opportunities for students to demonstrate the appropriate learning outcomes.

transfer of weight

#### **Terminology**

Activities in this module involve the use of the following language in the context of Health and Physical Education:

accuracy effort stance balance field throw catch height track

demonstrate intensity
direction movement
distance receive

#### School authority policies

Teachers need to be aware of and observe school authority policies that may be relevant to this module.

Safety policies are of particular relevance in this module. Some safety issues that teachers should consider are:

- providing adequate warm-up and cool-down exercises prior to and following lessons;
- having students throw in the same direction during drill activities to avoid possible injury;
- encouraging students to be sun safe.

#### Social justice principles

This module provides opportunities for students to increase their understanding and appreciation of supportive environments and diversity. It includes activities that encourage students and teachers to:

- consider the needs of all students when demonstrating and planning throwing and catching activities;
- modify the environment to ensure all students can engage in throwing and catching activities in a supportive manner.

Students with disabilities or learning difficulties may require some activities to be modified to optimise both their participation and their ability to demonstrate the outcomes. Teachers should consult with parents/carers and specialist support staff to determine whether modification is necessary.

## Support materials and references

Australian Sports Commission 1994, Sport It! Towards 2000: Teacher Resource Manual, Tactical Directions Pty Ltd, Canberra.

Bellanca, J. 1997, *Active Learning Handbook for the Multiple Intelligences Classroom*, Hawker Brownlow Education, Melbourne.

Costa, A. L. 1991, 'The search for intelligent life', in A. Costa (ed.), Developing Minds: A Resource Book for Teaching Thinking, vol. 1, Association for Supervision and Curriculum Development, Alexandria, Virginia.

Fogarty, R. 1997, Problem-based Learning and Other Curriculum Models for the Multiple Intelligences Classroom, Hawker Brownlow Education, Melbourne.

Fogarty, R. & Bellanca, J. 1989, *Patterns for Thinking: Patterns for Transfer*, IRI/Skylight Publishing, Palatine, Illinois.

Fogarty, R. & Stoehr, J. 1995, *Integrating Curricula with Multiple Intelligences: Teams, Themes and Threads*, Hawker Brownlow Education, Melbourne.

Gardner, H. 1983, Frames of Mind: The Theory of Multiple Intelligences, Harper Collins Publishers, New York.

#### **Activities**

#### Getting started

Have students throw and catch medium-sized balls in small groups to ascertain their skills and abilities. Identify those students who are going to need special attention to develop their throwing and catching skills and make allowances for these students in your lessons.

Ask students what and how they would like to learn and practise when throwing and catching. Use their responses to further guide the design and structure of your lessons. Use beanbags and balls of varying shapes, textures and sizes for the throwing and catching activities that follow.

#### Introductory

# THROWING AND CATCHING

Gathering information and experiences to develop an understanding of throwing and catching terms, skills and knowledge

#### Verbal/linguistic intelligence

- ► Students describe ball games that require throwing and catching. They explain the types of movements they make in those games for example, students may say that they have to run to catch the ball, throw with two hands, throw underarm or throw the ball high.
- ▶ Students suggest words and phrases used during throwing and catching games and sports. Students discuss these terms briefly and make a list to which they add to or refine throughout the module.
- ▶ Students find maps, booklets, newspaper articles and other forms of media that relate to throwing and catching activities. They make a display of these and discuss the range of opportunities for students to participate in throwing and catching activities. They consider whether all children in the class or school have equal opportunities to participate in throwing and catching activities.

#### Focus questions could include:

- What local areas are there for you to play throwing and catching games?
- What clubs are there that you could join that offer sports involving throwing and catching?
- Do all students have the same opportunity to use these areas or join these clubs? If not, why would they be excluded?

#### Bodily/kinaesthetic intelligence

▶ Students describe how they feel and identify parts of the body they use when throwing and catching. They are able to point to the muscles and limbs they use and suggest how they contribute to the actions of throwing and catching.

#### Focus questions could include:

- What parts of your body are you using when throwing?
- How does throwing hard feel different from throwing softly?
- How would you describe what your hands are doing when you catch and throw the ball?

#### **Teaching consideration**

Possible responses from students may include:

- · legs are used for balance;
- · arms are used to reach for the ball;
- · fingers keep control of the ball.
- ▶ Students throw and catch medium-sized balls in pairs. They explore as many ways as possible for throwing and catching and describe which of these they found best.
- Resource
  Sheets 2a-d

► Students watch the teacher demonstrate and explain the correct throwing technique, including ball grip, for underarm, overarm, one-handed, two-handed, chest and overhead passes. They then practise throwing using the correct techniques. (For a detailed explanation of throwing techniques see Resource Sheets 2a–d, 'Throwing and catching skills'.)

#### **Teaching considerations**

Demonstrate each of these skills individually and separately over several lessons, thus allowing students time to practise between each demonstration. Reinforce these techniques during all activities.

Throwing to a wall, fence or inclined area will reduce retrieval time.



► Students watch the teacher demonstrate and explain the correct catching technique for using two hands, catching both small and large balls from different heights and angles. They then practise catching using the correct techniques. (See Resource Sheets 2c for a detailed explanation of catching techniques.)

#### **Teaching consideration**

Demonstrate each of these skills individually and separately over several lessons, allowing students time to practise between each demonstration. Reinforce these techniques during all activities.

► Students identify classmates who use lots of energy during throwing and catching activities and those who use less energy. They explain why some students are more energetic than others.

#### **Teaching considerations**

Students should be looking for physical changes that may point to the level of effort participants are putting in to the activity — for example, puffing, sweating, breathing deeply.

Ensure students provide examples in a sensitive manner.

#### Visual/spatial intelligence

► Students draw sketches showing the position of arms and legs when throwing and catching.

#### **Teaching considerations**

Have a student model throwing and catching actions.

Discuss sketches with students, saying why the positioning is correct or incorrect.

#### Logical/mathematical intelligence

▶ Students respond to challenges that involve increasing the distance they have to throw, and changing the size and shape of the ball thrown. Students explain why it is more difficult to throw and catch over a longer distance, and provide a logical explanation, based on what they know, as to which type of throw is better over distance, better for accuracy and is easiest to catch.

#### **Teaching considerations**

Encourage students when formulating their explanations to consider the size and shape of the ball, the size of their own bodies and limbs, and their existing expertise at throwing and catching.

Students who are vision impaired may find it difficult to track a ball coming to them from a distance.

- ➤ Students rank different balls according to the distance they can throw them underarm, overarm, or with a chest or overhead pass. They also rank the balls according to the degree of effort required to throw them each way for example, it would require more effort to throw a basketball underarm a long distance than a tennis ball.
- ▶ Students search the Internet for information about throwing and catching. They may be able to find information on local or regional sites about opportunities to play sports or other activities involving throwing and catching. On finding suitable web sites they write down the Internet address and describe what they found at the site.

#### **Teaching consideration**

This activity should be supervised by an adult or older student.

#### Musical/rhythmic intelligence

▶ Students throw and catch to different rhythmic beats. Students can also move along different pathways as they throw and catch. They demonstrate the different ways they have been taught to throw and catch.

#### **Teaching considerations**

To provide a beat use recorded music or invite a student to play an instrument. Vary the rhythm of the beat.

Students with hearing impairment may need to see or feel the beat of the music.

#### Interpersonal/social intelligence

- ▶ Students discuss in groups the throwing and catching activities and skills they found to be easy and those they found to be more difficult. They suggest further activities and skills they would like to work on in a group and give reasons for their choices.
- ▶ Students predict what feedback a partner would give regarding their throwing and catching skills and what suggestions he or she would make to improve their skills and knowledge. They discuss their predictions with their partners and compare ideas.

#### Naturalist intelligence

▶ Students suggest areas of the school that are best for practising throwing and catching. They explain the benefits of each area in terms of environmental conditions and the accessibility to all students. Where access is restricted to certain groups, they discuss the reasons for this and consider the need for change.

#### **Teaching consideration**

Encourage students to consider the degree of shade, the evenness of the ground, the proximity to other classrooms and safety in terms of incidents such as ant bites and bird attacks.

#### Intrapersonal/introspective intelligence

▶ Students reflect on and demonstrate or explain the information they have gathered with regard to throwing and catching skills, terms used and knowledge gained.

#### **Developing**

# PROCESSING INFORMATION

Processing information and experiences to further refine skills and knowledge of throwing and catching

#### Verbal/linguistic intelligence

► Students write a list of words or phrases that they use when throwing and catching. Examples may include 'spread your fingers', 'balance', 'throw', 'catch', 'distance', 'height'. Students demonstrate the actions.

#### **Teaching consideration**

The words should be written on a chart for display and referred to on appropriate occasions.

▶ Students provide a simple commentary on what they are doing while throwing and catching. They explain the techniques being used as well as the effort required to participate in different activities. They repeat the exercise while observing a partner.

#### **Teaching consideration**

• HEALTH AND PHYSICAL EDUCATION •

The teacher may need to model this commentary to remind students again of the specific techniques in throwing and catching.

#### Visual/spatial intelligence

► Students play leader ball and captain ball, which require them to throw and catch the ball over varying distances. They then draw illustrations that show a group of students playing these games.

#### **Teaching considerations**

Remind students to be aware of their personal space in these games.

Ensure games are not competitive and teams are evenly balanced.

► Students visualise, explain and then demonstrate how to throw a ball so that it bounces into a hoop or on a line and then is caught by a partner. They experiment with different types of throws to determine the most effective. Alternatively, a student rolls a hoop along the ground through which a partner throws a ball.

#### Bodily/kinaesthetic intelligence

► Students think about people in wheelchairs and discuss how throwing and catching activities may be difficult for them. Students sit on chairs and throw and catch with a partner and then describe the difficulties they had. They discuss how people in wheelchairs could have better school or local community support to ensure they can participate in throwing and catching games and sports.

#### **Teaching considerations**

Invite a local wheelchair athlete to the school to discuss his or her participation in a sporting activity — for example, wheelchair basketball.

The same activity could be used for students with vision impairment.

► Students combine throwing and catching skills to develop a sequence. They use different types of balls to demonstrate this sequence individually or in small groups.

#### **Teaching consideration**

The sequence should initially include simple locomotor and non-locomotor movements. More complex movements can be developed as skills improve.

#### Logical/mathematical intelligence

➤ Students throw and catch different types of balls, ranging in size, texture and shape, and then classify them according to how easy or difficult it is to throw and catch them.

#### Musical/rhythmic intelligence

► Students throw and catch by themselves while listening to a variety of music of different tempos. When the music is slow, they walk slowly while throwing and catching; when the music is fast, they walk faster or jog while throwing and catching. Students should become aware of the effect of the faster movement on the body — for example, puffing and panting. They compare moving slowly to music and quickly to music and the effects on the body while catching and throwing at the same time.

#### **Teaching considerations**

Students should realise how difficult it is to throw and catch when moving quickly and that they need to throw the ball in front of them at an appropriate distance and height for them to maintain consistent movement.

A large, open space should be used for this activity.

#### Interpersonal/social intelligence

➤ Students play a version of netball in small groups. They throw and catch the ball among team members and place it through a hoop or in a basket. Initially they play with no opposition to develop the idea of throwing (passing) to a teammate, and then against one or more opposing players to develop teamwork.

#### **Teaching considerations**

Ensure students encourage each other.

A simple set of rules may need to be developed.

▶ Students use a medium-sized ball to create their own modified game using throwing and catching skills. They discuss their ideas with others in the group and decide on a game to practise. Students are given time to play the game.

#### Intrapersonal/introspective intelligence

► Students assess their own improvement in throwing and catching. They nominate the skills they have developed and identify those they would like to further improve.

#### Naturalist intelligence

▶ Students suggest the advantages and disadvantages of covered areas and playing fields for practising throwing and catching. They consider environmental impacts, how much energy is used during the activities and possible effects on the body.

#### **Teaching consideration**

Students should realise that if they are outside in the sun they will use up energy more quickly and perhaps become sunburnt or overheated. However, they have more space to practise their skills, the grass is softer than concrete in case of falls and the surface is less damaging to the equipment.

#### **Culminating**

# APPLYING SKILLS AND KNOWLEDGE

# Applying developing skills and knowledge in throwing and catching activities

#### Verbal/linguistic intelligence

- ► Students predict which sports or activities they could play in the future that would utilise the throwing and catching skills they have learnt. They say why these skills would apply to those sports and activities.
- ▶ Students watch partners demonstrate a throwing or catching action. Students explain the actions of their partners as they throw or catch, the commentary focusing on the specific skills and sequence of actions for throwing and catching.

#### Visual/spatial intelligence

► Students plan a combination of walking, hopping, skipping and jogging movements that incorporate a range of throwing and catching skills. They perform these individually or in small groups.

#### **Teaching consideration**

Students could do this activity within a confined area — for example, a 10-metre-square grid.

#### Logical/mathematical intelligence

► Students, in pairs, develop a code for throwing and catching a ball. Without speaking they must throw and catch according to the coded signal given by their partner. Students may need to write the codes and their signals initially, until they remember them. For example, coded signals could be developed for a right-hand throw, overhead throw, two-handed catch.

#### **Teaching consideration**

Encourage students to devise codes that are logical, simple and inclusive for all students.

#### Musical/rhythmic intelligence

► Students plan a choreographed sequence of throwing and catching activities to a piece of music. They match the activity to the tempo and beat of the music.

#### Bodily/kinaesthetic intelligence

► Students discuss throwing and catching skills used in different sports. They demonstrate which bodily actions are used to throw and catch in these sports and explain how these actions may vary in different sports.

#### Focus questions could include:

- What actions does a player use to throw and catch a ball in netball, in softball or in cricket?
- How do these actions differ in basketball?

► Students speculate as to which of the throwing and catching sports require the most effort and use up the most energy. They rank sports according to the energy required to play and give reasons that support their ranking — for example, the energy expended by cricketers would not be as great as that expended by rugby players, yet both teams throw and catch.

#### Interpersonal/social intelligence

▶ Students in small groups throw the ball to each other in a set order. The ball must be caught and then thrown to the next person in turn. The sequence continues until each group knows the set order. They then add another ball, perhaps of a different shape or size, that is also thrown and caught in the same sequence. The students work together and support each other to ensure a ball is not dropped.

#### Intrapersonal/introspective intelligence

- ► Students complete the following statements that indicate their improvement.
- (a) I have learnt how to . . .
- (b) I still have problems . . .
- (c) I would like to improve at . . .
- (d) I enjoyed . . .
- (e) I understand . . .

#### Naturalist intelligence

▶ Students imagine they have the job of a groundsperson and plan what they could do to make an existing unsafe area safer for throwing and catching. They identify an area, explain why it is presently unsafe and list ideas for improving it for throwing and catching activities.

# The multiple intelligences



Resource Sheet

Multiple intelligence theory is based on the notion that all people are 'intelligent', and make sense of their world, in a variety of ways. The eight different intelligences identified by Gardner (1983) are:

#### Verbal/linguistic

People with a strength in the verbal/linguistic intelligence are good communicators. They enjoy listening, reading, speaking and writing in a variety of forms.

#### Visual/spatial

People with a strength in the visual/spatial intelligence enjoy drawing, creating pictures and puzzles, and making charts and sketches. They enjoy the challenge of creating designs and patterns that require imaginative thought.

#### Logical/mathematical

People with a strength in the logical/mathematical intelligence enjoy using facts and data. They enjoy organising and manipulating data using inductive and deductive reasoning. They are logical and organised.

#### Musical/rhythmic

People with a strength in the musical/rhythmic intelligence enjoy music, song and dance. They can be both creative and communicative using such forms of expression and find themselves immersed in these forms throughout their day.

#### **Bodily/kinaesthetic**

People with a strength in the bodily/kinaesthetic intelligence are usually active, handson people who enjoy participating in a wide range of physical endeavours.

#### Interpersonal/social

People with a strength in the interpersonal/social intelligence are very good at developing relationships with others. They have an empathy and an understanding for others that allow them to communicate easily with others.

#### Intrapersonal/introspective

People with a strength in the intrapersonal/introspective intelligence are cognisant of their inner self. They may be deep thinkers who can extrapolate their own thoughts and visions to others through poetry, song, commentary, fiction and other forms of communication.

#### **Naturalist**

People with a strength in the naturalist intelligence have an understanding and appreciation for the environment. They enjoy working in occupations that are protective of the environment as well as finding pleasure in many forms of outdoors recreation.

Source: Adapted from Fogarty, R. 1997, Problem-based Learning and Other Curriculum Models for the Multiple Intelligences Classroom, Hawker Brownlow Education, Melbourne.



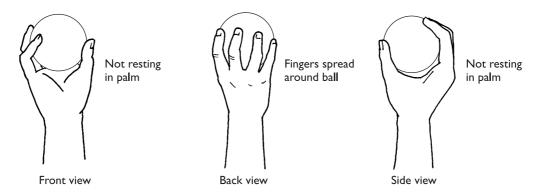
# Throwing and catching skills



The following information is for teacher reference purposes.

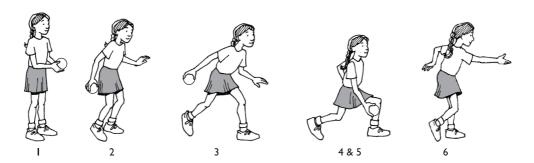
#### Ball grip

The grip on a small ball will vary, depending on the size and shape of the ball and the size of the person's hand.



Note: Hold the ball in the fingers (not in the palm of the hand)

#### Throwing underarm (one-handed)



- 1. Face the direction of the throw and focus on the target.
- 2. Step onto the foot opposite the throwing arm while it arcs backwards.
- 3. Move body weight forward and bend at the knees.
- 4. Keep arm straight and eyes focused on the target.
- 5. Release ball with final wrist action; the wrist should snap forward.
- 6. Follow through in the direction of the target.

(continued)

## Throwing and catching skills (continued)



Resource Sheet 2b

#### Throwing underarm (two-handed with larger ball)



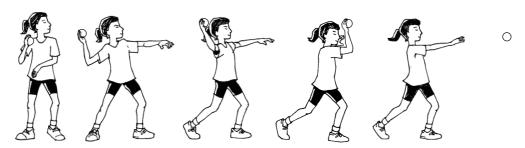






- 1. Face the direction of the throw and focus on the target.
- 2. Step onto the foot opposite the side of the body that the ball will be thrown from.
- 3. Move body weight forward and rotate hips, positioning the body so that it is side-on to the direction of the throw.
- 4. Keep arms relaxed and eyes on the target as arms swing forward.
- 5. Release ball.
- 6. Follow through in the direction of the target.

#### Throwing overarm (one-handed with small ball)



- 1. Grip ball between thumb and fingertips (not in the palm of the hand).
- 2. Focus on the target and stand side-on to it with weight on the rear foot.
- 3. Take the ball behind the head, at about eye-level, and cock the wrist backwards.
- 4. Bend the elbow at shoulder height behind the body and then extend the arm so that it is almost straightened.
- 5. Step forward onto the foot opposite the throwing arm; shift weight onto the front foot and rotate the trunk towards the throwing arm.
- 6. Swing the upper arm and elbow forward as the body is rotated and the weight is transferred onto the front foot.
- 7. Release the ball as the body faces the target and the hand is just in front of the shoulder.
- 8. Snap the wrist forward and down as the ball is released.
- 9. Follow through and across the body with the throwing arm, at the same time taking the opposite arm backwards to add force to the throw.

(continued)

## Throwing and catching skills (continued)

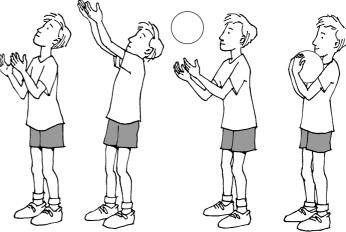


#### Catching a large ball (two-handed)

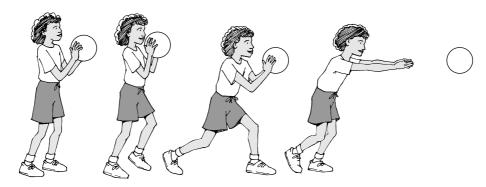
- I. Focus on the ball.
- 2. Move body so that it is in line with the ball.
- 3. Extend arms and hands, keeping elbows tucked in.
- 4. Catch the ball in outstretched hands and relax the arms to absorb the force of the ball.
- 5. Pull the ball in towards the body.

#### Progression

- 6. To catch balls above waist height, place thumbs together.
- 7. To catch balls below waist height, place little fingers together.



#### Throwing from the chest (two-handed)



- 1. Focus on the target and place one foot slightly in front of the other.
- 2. Hold the ball so that the hands are behind it and fingers spread; elbows tucked in to the sides.
- 3. Draw the ball back and down.
- 4. Push the ball forward evenly with both hands.
- 5. Step forward onto one foot as the throw is made.
- 6. Extend the hand and wrists as the ball is released; follow through into the pushing action.

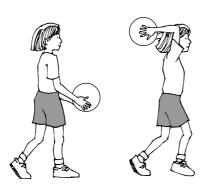
(continued)

## Throwing and catching skills (continued)



Resource Sheet 2d

#### Throwing overarm (two-handed)

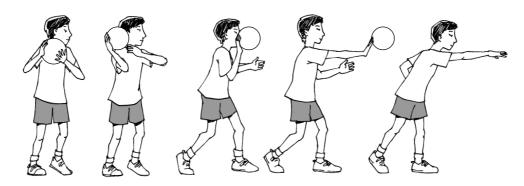






- 1. Hold the ball with the fingers spread and hands positioned on the back of the ball.
- 2. Focus on the target and place one foot slightly in front of the other for stability.
- 3. Take the ball back behind the head, at the same time bending the body backwards from the hips.
- 4. Take a step forward as the ball is released. (Note there is no hip rotation.)
- 5. Extend the arms and throw the ball over the head, following through with hands and wrists.

#### Throwing overarm (using one hand)



- 1. Focus on the target, with the body slightly turned away from it.
- 2. Hold the ball on the preferred side with the throwing hand behind the ball. Spread fingers of both hands and use the non-throwing hand to steady the ball.
- 3. Move the foot opposite the throwing arm forward.
- 4. Draw the ball back in readiness for the throw.
- 5. Push the ball forward, at the same time taking a step onto the opposite foot.
- 6. Release the ball, extending the arm and transferring the weight onto the front foot.
- 7. Extend the wrist and hand to follow the flight of the ball.

#### Acknowledgments

Grateful acknowledgment is made to the following organisation for granting permission to use copyright material:

Hawker Brownlow Education, Melbourne, for material from *Problem-based Learning and Other Curriculum Models for the Multiple Intelligences Classroom* by Robin Fogarty, 1997.

This sourcebook module should be read in conjunction with the following Queensland School Curriculum Council materials:

Years 1 to 10 Health and Physical Education Syllabus Years 1 to 10 Health and Physical Education Sourcebook: Guidelines Health and Physical Education Initial In-service Materials

ISBN 0734520379

© The State of Queensland (The Office of the Queensland School Curriculum Council) 2000

Queensland schools are permitted to make multiple copies of this module without infringing copyright provided the number of copies does not exceed the amount reasonably required for teaching purposes in any one school. Copying for any other purposes except for purposes permitted by the Australian Copyright Act 1968 is prohibited.

Every reasonable effort has been made to obtain permission to use copyright material in all sourcebook modules. We would be pleased to hear from any copyright holder who has been omitted.

The State of Queensland and the Queensland School Curriculum Council make no statements, representations, or warranties about the accuracy, quality, adequacy or completeness of, and users should not rely on, any information contained in this module.

The State of Queensland and the Queensland School Curriculum Council disclaim all responsibility and liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs whatsoever (including consequential loss) users might incur to person or property as a result of use of the information or the information being inaccurate, inadequate, or incomplete.

Any inquiries should be addressed to: Queensland School Curriculum Council PO Box 317 Brisbane Albert Street, Q 4002 Australia

Telephone: (07) 3237 0794 Facsimile: (07) 3237 1285

Website: http://www.qscc.qld.edu.au Email: inquiries@qscc.qld.edu.au

Illustrations by Stephen Francis

PIP 992026